

**The Auto Industry Moving South:
An Examination of Trends**

**Kim Hill
Emilio Brahmst**

12-15-2003

Center for Automotive Research

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Introduction

Since the late 1980s, a number of high-profile automotive assembly facilities—and their associated jobs—have located in the southern portion of the United States—in a region which previously had a small automotive presence. Speculation is rampant that the automotive industry is moving south, lured by lower costs and large incentive packages. This has caused concern among the traditional automotive communities in the U.S. upper Midwest and southern Ontario that they do not have the necessary resources to compete for new automotive investment against the southern U.S. This paper examines what factors are responsible for this shift south, and whether the northern region can stem the tide and attract new investment.

The Problem

Jobs related to automobile manufacturing have been moving south in ever-increasing numbers for more than a decade. New automobile assembly plants have been opening on a regular basis in the southern United States—in an area which stretches from Kentucky to Texas. These new automobile assembly facilities in turn attract supporting supplier companies. The reasons for this movement south—away from the traditional geographic base of automobile manufacturing—are numerous, including low wage rates, non-unionized labor, freight costs, and market share redistribution from the traditional domestic manufacturers—who manufacture primarily in the upper Midwest—to Asian and European transplant companies—who manufacture almost exclusively in the south. No longer is the upper U.S. Midwest of the United States and southern Canada the exclusive domain of the North American automobile industry.

WHY DO PLANTS LOCATE WHERE THEY DO?

Demographics

Automobile manufacturers prefer to build vehicles close to their primary markets, to reduce the cost of shipping finished vehicles to their customers¹. According to the U.S. Census Bureau, between 1990 and 2000 the combined population of six southern automobile manufacturing states including Alabama, Georgia, Mississippi, South Carolina, Tennessee, and Texas, increased by 7.5 million people. Meanwhile, during the same time period, the northern states of Illinois, Indiana, Michigan, Missouri, Ohio, and Wisconsin added just 3.6 million people. The six southern states' population increased by 19.7 percent, while the northern states increased by only 7.7 percent in the same decade².

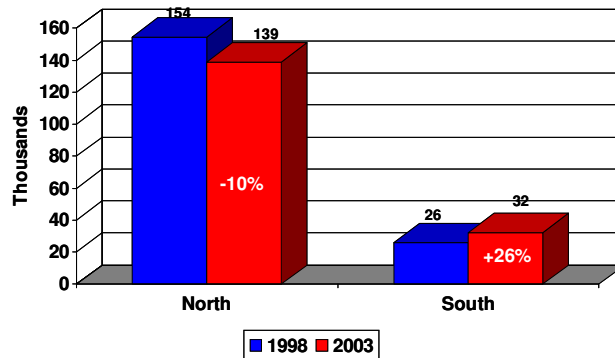
In the period from 1998-2001, the number of vehicle registrations in the South Atlantic states increased from 18.3 percent of U.S. total registrations to 18.8 percent, while at the same time the Great Lakes states' share of total registrations dropped from 17.5 percent

¹ For example, see p. 24, "The Economic Impact of BMW on South Carolina", Moore School of Business, University of South Carolina, May 2002

² Statistical Abstract of the United States: 2001, U.S. Census Bureau

to 16.9 percent³. As the population and the number of motor vehicle owners of the sunbelt states has increased, the number of automobile assembly plants in the same region has increased, and consequently, so have the number of motor vehicle manufacturing employees (see Table 1). Due to these demographic shifts and the high cost of shipping motor vehicles, the demand to add more regional assembly plants—and the jobs that go with them—is likely to remain high in the south—to the detriment of the traditional automobile states in the north.

Table 1
Motor Vehicle Manufacturing Employment (NAICS 336100)



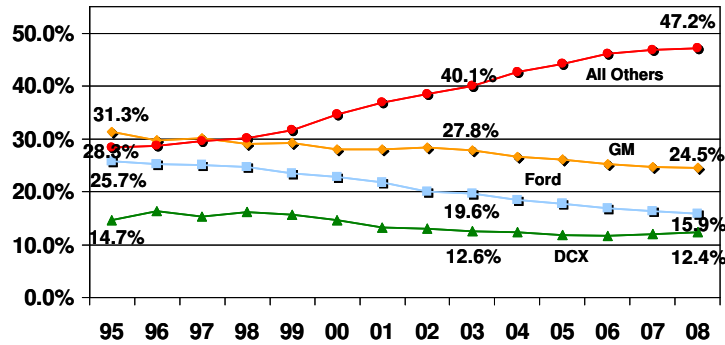
Source: Bureau of Labor Statistics

Jobs Follow Market Share

A simple fact of economics for motor vehicle manufacturers is that if you are gaining market share, you will need more plants and workers, and if you're losing market share, you will need less of each. As shown in Table 2—which shows historical sales trends up to 2002, and forecast sales data for the period from 2003-2008—the traditional domestic automakers (Ford, General Motors, and Chrysler Group) have been losing—and probably will continue to lose—market share to the transplant automakers for many years. Consequently, the domestics have reduced the number of manufacturing facilities, employees, and vehicles produced, while the transplants have been doing just the opposite—rapidly expanding their operations and market share since the late 1980s.

³ Ward's Automotive Yearbook 2003. Ward's Communications, Southfield MI

Table 2
U.S. Market Share 1995 – 2008



Source: CSM, Inc.

Note: Market share from 2003-2008 forecast by CSM

As the transplant companies gained market share, there came a need to build more assembly facilities in North America. With the cost of moving freight into and out of a manufacturing facility one of the main factors contributing to the cost of a finished vehicle, the transplants wanted to build vehicles close to their customers in order to reduce those costs. Due to this period of expanding market share, and rapid population growth of the southern half of the U.S., it only made sense to build more motor vehicles in this region of the country. As shown in Table 3, as of 2001, the transplants have added almost 3 million units of capacity since the 1980s, more than half of which is located in the south. Table 4 documents almost 1.3 million more units of capacity that will be added by the transplant companies by 2006, with all but 200,000 units being built in the south. As long as the transplant companies continue to take market share away from the traditional domestic manufacturers and population trends continue, the movement of high-paying automotive jobs south will likely continue.

Table 3
Transplant Assembly Facilities as of 2001

Company	Location	Employment	Investment (\$ Millions)	Actual 2001 Capacity
BMW	Spartanburg, S.C.	1,350	400	65,800
Honda	Marysville, OH	4,610	1,700	473,760
	East Liberty, OH	2,243	659	233,120
	Lincoln, AL	2,000	-	120,000
Mercedes-Benz	Vance, AL	1,500	300	60,000-
Mitsubishi	Normal, IL	4,000	650	259,440
NUMMI	Fremont, CA	3,793	1,700	387,318
Nissan	Smyrna, TN	3,587	1,350	430,520
Subaru-Isuzu	Lafayette, IN	2,300	670	248,160
TMM-Indiana TMM-Kentucky	Gibson County, IN	2,300	1,200	200,000
	Georgetown, KY	5,006	3,000	483,160
AIAM Total				2,961,127

Source: CAR research

Table 4
New Transplant Assembly Capacity: 2003-2006

	Location	Employment	Investment (Millions)	New Capacity
BMW-Expansion	Spartanburg, S.C.	1,400	\$400	60,000
Toyota-Tundra	San Antonio	2,000	\$670	150,000
Mercedes-Benz-Expansion	Vance, AL	2,000	\$600	80,000
Nissan-Truck	Canton, MS	5,800	\$1,600	400,000
Hyundai	Hope Hull, AL	2,200	\$747	250,000
TMM-Indiana Expansion	Gibson County, IN	2,000	\$800	200,000
Honda Lincoln II	Lincoln, AL	2,000	\$335	150,000
New Vehicle Total				1,290,000

Source: CAR research

Labor: Unionization and Cost

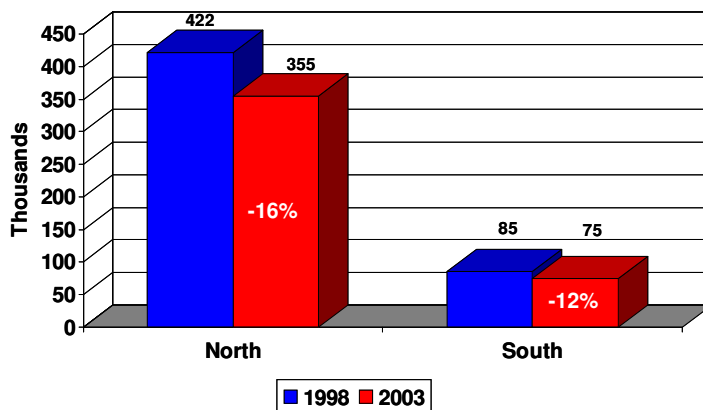
As discussed in the paper, “The Market Renewal of Major Automotive Manufacturing Facilities in Traditional Automotive Communities⁴”, most of a firm’s recurring costs fall into one of three categories: freight, labor, and utility costs. Freight and utility costs are reasonably easy to quantify, however, labor costs are much more difficult to fully understand. Initially, many transplant companies actively chose locations in right-to-work states in the south to avoid unionized labor in the north, and the presumed accompanying costs⁵. Even though the transplants still prefer right-to-work locations, their per employee compensation costs have remained comparable to those of workers in unionized plants. However, the same cannot be said for supplier facilities, where there are sharp discrepancies between wage levels of the two types of workers.

Over the last decade, there has been a relentless campaign on the part of the OEMs to drive excess costs out of their supply chain. This has led suppliers whose products have a high labor content to actively seek low-wage markets. Not surprisingly, these types of suppliers only briefly stopped in the southern U.S. on their way to places like Mexico, China, and points beyond. In fact, during the period from 1998-2003, the southern region of the country lost supplier jobs at a rate only slightly lower than the supplier losses from the northern region. (see Table 5)

⁴ McAlinden, Hill, 2003.

⁵ Rubenstein, p. 254

Table 5
Motor Vehicle Parts Manufacturing Employment (336300)



Source: Bureau of Labor Statistics

Labor II: Quantity and Quality

While keeping the cost of labor down and avoiding unions are a concern to the transplant automobile manufacturers, of equal importance is the quantity and quality of potential workers in a community. In his book, Rubenstein explains that the Japanese owned manufacturers strived to find communities that are far away from the nearest auto plant, where residents are likely to hold non-union attitudes, and the local workforce is well-educated. Surveys distributed to potential communities by the transplant companies asked specifically about the educational infrastructure—the number of public, private, and vocational schools and colleges in the area⁶.

Further, the transplant companies do not like to compete for workers in a community—they would like to be able to attract the best workers available in large numbers so they can have a large pool of workers to choose from—hence their reluctance to locate near an existing manufacturing facility. This factor makes locations in the south extremely attractive, as most of these new automobile manufacturing facilities are the first ones to locate in the state. Once Mercedes and BMW began hiring for their facilities, a large number of potential employees applied for positions at the facilities. In fact, 45,000 Alabamians applied for the chance to secure one of the 1,500 positions at the original Mercedes facility⁷. Once the other foreign-owned manufacturers saw the success Mercedes was enjoying, the floodgates opened and many companies rushed to locate in the Deep South. Within three years of opening its Alabama facility, DCX (the company had merged with Chrysler by this time) announced it was expanding the factory, adding an additional 2,000 workers.

⁶ Rubenstein

⁷ “Touchdown!”, Forbes.com (www.forbes.com/global/1999/0809/215022a.html), accessed 1/9/2003

What Role Incentives?

As mentioned earlier, a number of factors come into play in a company's site selection decision. Assessing each of these factors can help a company reduce its possibly lengthy list of potential sites down to a manageable handful that can meet the needs of the proposed facility. Then, from the remaining handful of choices, all but two, possibly three, sites are eliminated. It is at this point in the selection process when companies look to incentives to help differentiate one site from the others. Up until this time, the company's focus was on sites that were physically desirable. Now, however, having decided on two or three acceptable sites, the company will choose the site which makes the most sense financially. At this stage in the process, incentives—especially those that address the company's cost of doing business—can have an enormous influence on the site decision.

Most likely the communities that are involved in the final site decision process are aware that they are in competition with one or two other communities for the proposed facility. Within this competitive atmosphere, each remaining community is asked to present its best package of incentives, and a site decision is made—typically in favor of the community offering the best incentive package. Incentives, therefore, only become a differentiator among the finalist communities. Incentives are not what a company initially finds attractive about a community, but they are what ultimately help close the deal.

Incentives: North versus South?

There appears to be evidence that the competition among communities for automotive capital investment is a regional competition, not national. When a public announcement is made of substantial automotive capital investment in a community, the community which finished the bidding in second place is hardly ever mentioned. However, in cases where the competing community is disclosed, that community is often in a neighboring state. Take, for instance, the 2003 Toyota announcement of San Antonio, Texas for its new truck plant. It was well known that a community in Arkansas finished a close second in the siting decision. Additionally, in 2002, Hyundai chose Montgomery, Alabama, over a competing community in Kentucky, and Subaru chose Indiana over Michigan and Illinois for new investment in 2000. Rarely is the competition between sites in two separate regions of the country. This is due primarily to the new plant's business case—freight costs, proximity to customers, available labor—which usually dictates the general location of the assembly plant.

Attracting a new vehicle assembly plant to a community or region is a complex process. An assembly plant has a tremendous impact on a community in a number of ways, not only in terms of employment, but also through the economic multiplier effect. Bringing major automobile assembly capital investment to a community represents a coup, not only to the immediate community, but to a broad region that can even include bordering states. With high average wages of \$69,500 per worker⁸, a job creation multiplier of 7.5—the highest of any industry in the U.S.⁹—and capital investment that can potentially

⁸ Source: www.bea.doc.gov/bea/dn/nipaweb/ Table 6.2c; Annual Survey of Manufacturers-U.S. Census Bureau

⁹ McAlinden, Sean P. and George A. Fulton. Contribution of the Automotive Industry to the U.S. Economy in 1998: The Nation and Its Fifty States. A Study Prepared for the Alliance of Automobile Manufacturers, Inc. and the Association of International Automobile Manufacturers, Inc. by the Center for Automotive Research, Environmental Research Institute of Michigan and the Institute of Labor and Industrial Relations, The University of Michigan, Ann Arbor, March 2001.

reach \$1 billion or more, it is easy to see why automotive assembly plants are highly prized by communities as a stimulus for economic development. Because of these factors, a fierce competition has developed during the last decade between communities for new automotive investment. However, the cost to attract the automotive investment is not cheap. Communities, in some cases, have offered incentive packages reaching upwards of \$300 million per facility and over \$100,000 per job¹⁰.

The Book of Deals

In 2003, the Center for Automotive Research (CAR) undertook a study of the automotive capital investment that has occurred in North America since 1993. This database, called “The Book of Deals” (BOD) contains data on over 130 investments, totaling more than \$24 billion and impacted over 89,000 jobs. CAR wanted to know if there were any development trends that would be revealed from an investigation of these deals, while also examining the incentive packages communities were offering to attract the automotive investment.

The BOD database, while not a census of all deals during the last decade, is a fairly comprehensive list of the large headline-type investments made by automobile manufacturing firms and the companion supplier sector. It contains the size of company investment, number of jobs impacted, incentive information, and other details, where available, such as announcement date, size of facility, etc.

Data for the BOD and related research was collected through a variety of sources including:

- Searched libraries for previous research on the subject of incentives
- Online searches
 - Online publications such as Southern Business Development (SB-D.org) Site Selection Magazine (SSM.com) and others
 - Governors’ press releases
 - State economic development offices
 - Local chambers of commerce
 - Newspapers
- Additionally, interviews were conducted with
 - OEMs
 - Economic development officials
 - Chambers of commerce

Once the database was compiled, entries were coded for type of facility (manufacturer, supplier), location (north or south), and type of construction (expansion or new). For this study, Southern states were coded as those located south of Ohio, Indiana, and Pennsylvania. These include Alabama, Georgia, Mississippi, South Carolina, North Carolina, Virginia, West Virginia, Kentucky, Texas, and Tennessee. Northern states are

¹⁰ CAR research, The Book of Deals, 2003

generally the Great Lake states of Wisconsin, Illinois, Indiana, Michigan, Ohio, New York, along with Missouri.

Methodology of BOD Analysis

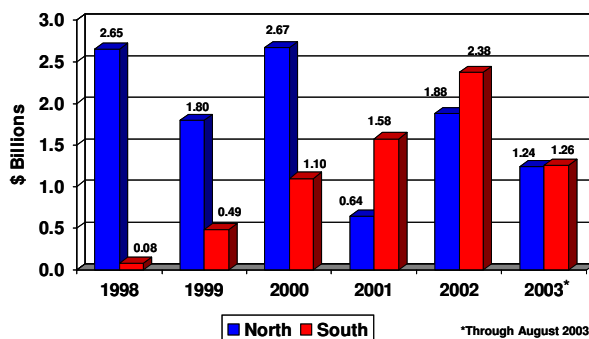
- For statistics that reflect total numbers, such as, total investments or total number of new jobs, all investment records were used for analysis.
- If a statistic is based on more than one piece of information, then only records with complete information were used. For example, when calculating investment per job, only investment records that included information on “number of jobs” and “investment” were used. Similarly, when comparing investments per job with incentives per job, then only records which included information on investment, incentives, and number of jobs were used for analysis. The reason for this approach was that, for a variety of reasons, some records did not include each piece of information and using these records could have distorted results.

This study focuses primarily on the vehicle manufacturers, so only those types of facilities were included in the analysis. Fifty-five manufacturing facilities were included in the analysis, representing a total company investment of \$21 billion and 63,300 total jobs created or renewed.

Examination and regional comparison of this subset of vehicle manufacturing facilities reveals that there are regional differences between incentives offered to firms locating in the north and companies choosing the south. The comparison also raises questions as to what types and quantities of incentives communities should offer to prospective automotive manufacturing firms.

During the period from 1998 to 2003, the annual amount of automotive investment in the southern states has been steadily climbing, as seen in Table 6. In that same period, automotive manufacturing investment in the northern states has been sporadic, however, the annual average is approximately \$1.81 billion—greater than all but one year of southern investment.

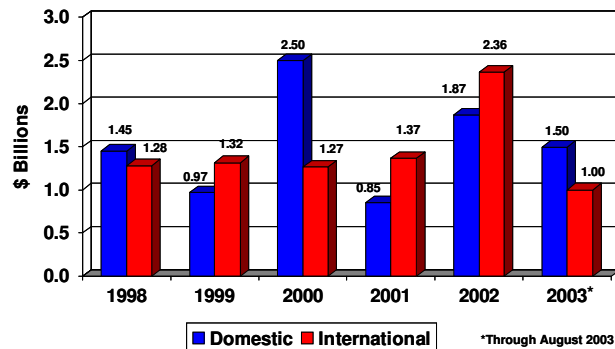
Table 6
OEM Investment: North / South



Source: CAR research: Book of Deals

Additionally, as shown in Table 7, a comparison of annual investment by domestic firms versus international firms shows that, except for 2000, year-in and year-out investments are quite similar. However, most of the international firms' investments went to the south. As the market share of the transplant firms continues to rise in the years ahead, there is an expectation that international investments will begin to overshadow domestic investment on an annual basis.

Table 7
OEM Investment: Domestic / International



Source: CAR research: Book of Deals

An examination of the automobile manufacturing firms' investments by north and south regions, as shown in Table 8, reveals that auto plants in the south are averaging more investment per facility than plants built in the north. Along with this investment—or perhaps because of it—municipalities in the south are offering incentive packages nearly 70 percent higher than incentive packages in the north. The incentives offered southern firms average \$143 million per facility, or over \$87,000 per job. In the early part of the 1990s, this level of incentives were unheard of, and sometimes very unpopular with the taxpayers—in fact the governor of Alabama at the time of the original Mercedes deal, was voted out of office as his challenger screamed corporate welfare and tax giveaways¹¹. However, as the decade wore on, more announcements were made that included huge incentive packages used to attract brand new assembly plants. Soon, many states took a closer look at the economic benefits from those facilities and realized that maybe incentives weren't such a bad idea to help attract these facilities and their accompanying jobs.

Table 8
Regional Comparison of Investment and Incentives

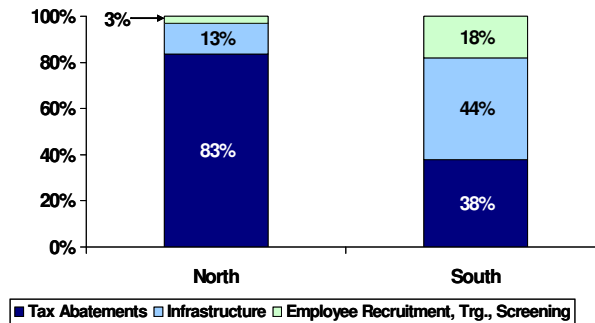
	Northern	Southern
Facilities	8 new, 26 expanded	10 new, 11 expanded
Company Investment	\$12.4 billion	\$8.6 billion
Average Investment per Facility	\$365,000,000	\$410,000,000
Total Incentives	\$1.7 billion	\$2.0 billion
Jobs Created / Renewed	38,260	25,000
Average Incentives per Facility	\$84,000,000	\$143,000,000
Average Incentives per Job	\$50,180	\$87,700

¹¹ See: "Touchdown!", Forbes.com (www.forbes.com/global/1999/0809/215022a.html), accessed 1/9/2003

There are many pieces that make up an incentive package. Communities have offered incentives such as tax abatements, job creation tax credits, site preparation assistance, subsidized land purchases, employee recruitment and training subsidization, and numerous on- and off-site infrastructure improvements, among others. Financial incentives appeal to companies because they can directly reduce the initial investment in an automobile facility—through reduced land acquisition prices and infrastructure improvements—and also the operating costs—through reduced taxes.

An in-depth examination of data contained in the Book of Deals database reveals that the incentive packages offered to automobile manufacturing firms locating in the northern states differs markedly from those offered to firms in the south. Table 9 details how the funds in the incentive packages were distributed. The overwhelmingly portion of the northern states incentive packages—83 percent—are made up of tax abatements, with 13 percent spent on infrastructure improvements—including both on-site improvements and area improvements such as roads, interchanges, sewers, and water. The remaining three percent of the northern incentive packages are devoted to employee recruitment, training, and screening. Compare that with the south, where 38 percent of a package is in tax abatements, 44 percent is spent on infrastructure, and 18 percent is allocated for employee training, screening and recruitment.

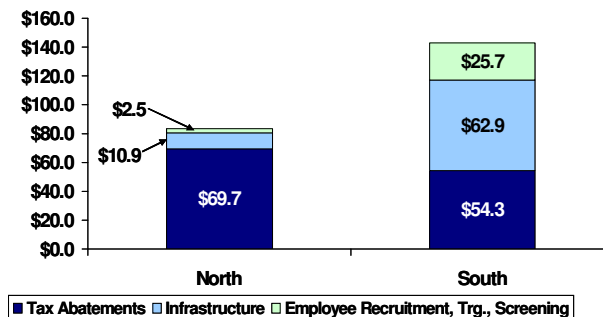
Table 9
Incentive Comparison: OEM Plants



Source: CAR research: Book of Deals

Table 10 shows the amount spent on each of the three broad categories, extrapolated from the total average incentive package for the northern and southern regions. This shows that, on average, southern locations are spending \$52 million more on infrastructure improvements than are their northern counterparts. Additionally, southern locations are contributing \$23.2 million more for employee recruitment, training, and screening.

Table 10
Incentive Comparison:
Extrapolation of Incentive Distributions—
Average per OEM Plant



Source: CAR research: Book of Deals

Incentives Given Versus Economic Benefits Received

A question often asked is: Can you secure OEM (or major supplier) investment without financial incentives? Unfortunately for cash-strapped states and communities, it appears that the quick answer to that question is, no. States and communities have to offer incentives because every other serious contender state and community will give them, and more importantly, the companies have come to expect them. However, there is a silver lining to what seems like corporate extortion—despite the size of the incentive packages, the communities make out in the long run.

There is substantial evidence which shows that an incentive package paid to encourage an automaker to invest in a community is quickly recovered through tax revenues generated by the jobs created, along with the additional indirect or spinoff employment effects. In Michigan, and many other states, an economic impact analysis is a mandatory precursor to any state and community assistance. For instance, the State of Michigan and the City of Flat Rock awarded Ford Motor Company a combined \$125 million in tax breaks in 2003 to be used to offset the \$644 million the company will invest to upgrade the Flat Rock facility to begin building Mustangs. The State estimates that over the life of the incentive package, \$850 million will be paid in taxes by the 1,945 current workers, the projected 1,400 additional plant employees, and the estimated 6,300 indirect jobs created by the spending of the company and its employees¹².

In Mississippi, the state granted Nissan \$68 million in incentives for an expansion at its yet-uncompleted assembly plant, bringing the total incentives offered Nissan to \$363 million for this single plant. A study funded by the state, and conducted by the University of Southern Mississippi, estimates that the Nissan investment would create 16,215 direct and indirect jobs by 2005, and that the state's investment in Nissan would "break-even" by 2007¹³.

¹² Detroit Free Press, February 11, 2003

¹³ From the Site Selection Online Insider, 11/4/2002, <http://www.conway.com/ssinsider/incentive/ti0207.htm>

As with any forecast, projections of economic impact should be viewed with a healthy dose of skepticism. Rubenstein (1992) points out in his book that the Toyota Georgetown, Kentucky plant was estimated by a University of Kentucky study to contribute \$632.6 million in property, sales, and income taxes during the first twenty years. This would be almost twice the amount of the incentives (estimated to be as high as \$325 million which includes the state's obligation to help pay interest on construction financing) granted to the plant by the state. However, Rubenstein refers to a separate study by the economist Larry Ledebur, which placed expected tax revenues at \$267.5 million. The discrepancy in the impact contributions appears to be the result of conflicting job multipliers applied in both studies, reportedly with the University of Kentucky using a multiplier of eleven, while implying that Ledebur used a jobs multiplier no higher than two¹⁴. The Center for Automotive Research has calculated the jobs multiplier effect for an assembly plant at 7.5¹⁵.

TO GIVE INCENTIVES OR NOT?

As the above economic impact analysis discussion seems to indicate, if an automobile company comes to a community wanting to invest in an assembly plant, contingent upon the award of a substantial benefit package, the community should probably say: where should we send the check? However, it is necessary to mention a few caveats. Communities should perform the economic impact analysis, but only for what seems a reasonable life of the product to be built at the prospective plant. In other words, the community may be giving the automaker a tax break for 20 years, but the vehicle slated to be built at the assembly plant may have a reasonable life span of 5 years, subject to renewal, if consumer demand is strong. Therefore, the community should calculate the economic impacts based on five years, not twenty. If the economic impact offsets the tax breaks in five years or less, the community incentive investment is worthwhile. If the vehicle built by the plant is a slow-seller, and it takes longer than the expected life of the product to recover the value of the incentive package, the community is taking a risk that the plant employment will still be as high as originally projected. Lower employment will cause the expected tax revenue stream to slow down, causing a longer payback period.

In 1992, James M. Rubenstein, in his book, "The Changing US Auto Industry", asked: "Are communities paying too much for auto plants?" The short answer is: it depends who you ask. The states of Alabama and South Carolina are happy with their investments in Mercedes, Honda, and BMW. All three companies have expanded beyond their initial footprint as the models produced by these companies have been well-received by consumers. In addition, the automobile companies have attracted a number of supplier firms, creating yet more jobs. Perhaps most importantly is the effect the companies have had on the two states' image as good places for business relocation. Knowledgeable people in both states claim that the states have more than recovered their initial investments¹⁶.

¹⁴ James M. Rubenstein, "The Changing US Auto Industry", p. 229. 1992

¹⁵ McAlinden, S.P.; Fulton, G.A.; 2001: Contribution of the Automotive Industry to the U.S. Economy in 1998: The Nation and Its Fifty States; The University of Michigan.

¹⁶ "S.C. gave BMW the Keys to the City—and Thrived", Savannah Morning News, 10/9/02; "Touchdown!", Forbes.com (www.forbes.com/global/1999/0809/215022a.html), accessed 1/9/2003

Conclusion

There appears to be scant evidence that auto companies are locating facilities in the south based chiefly on the size of incentive packages. In fact, incentives don't seem to enter the equation until the site selection has been reduced to choosing between two or three communities, which are almost always in the same region. Instead, there are fundamental changes occurring in the auto industry and the population growth patterns of the country that are affecting the location of new manufacturing facilities. States, provinces, and communities have little control over these changes that are affecting the core business model of the industry.

Evidence indicates that the industry is going through a "right-sizing" of its regional and North American capacity, with traditional domestic automakers firmly entrenched in north central U.S., and southern Ontario—a region that is growing slowly at the same time the domestic automakers are collectively losing market share. Meanwhile, the transplant companies are predominantly locating in the southern regions of the country, at the same time their aggregate market share continues to grow. As long as the transplant companies continue to take market share away from the traditional domestic manufacturers, and the population of the southern part of the country keeps on growing, the movement of high-paying automotive jobs south is likely to continue.